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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/437,489	11/10/1999	HIROHIKO ISHII	99224	8040

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EXAMINER
KIM, DAVID S

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 09/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/437,489	ISHII, HIROHIKO	
	Examiner	Art Unit	
	David Kim	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 September 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3, 5, and 6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 5, and 6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *04 September 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on 4 September 2002. These drawings are acceptable.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg in view of Yamana et al. Rosenberg discloses an IR communication device comprising:

a substrate;

an infrared rays receiving element mounted on the substrate at a position on the X-line;

a first lens provided on an infrared rays emitting element; and

a semispherical second lens provided on the infrared rays receiving element;

(Rosenberg, col. 2, lines 50-57, Figs. 3a-3d).

Rosenberg does not disclose:

a plurality of infrared rays emitting elements mounted on the substrate and arranged on an X-line;

the first lens elongated in a direction of the X-line;

the first lens having an elongated convex shape and a length longer than a length of the arrangement of the infrared rays emitting elements so as to expand infrared rays radiation range in the direction of the X-line.

However, Yamana et al. discloses such a plurality of elements (Yamana et al., light-emitting diode chips 2 in Fig. 1, col. 3, lines 1-2) and first lens (Yamana et al., col. 3, lines 21-36, Fig. 2). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the plurality of elements and first lens of Yamana et al. in the device of Rosenberg. One of ordinary skill in the art would have been motivated to do this since "light rays which have passed through that surface [lens] portion are collected more closely along the optical axis of the lens" (Yamana et al., col. 4, lines 3-5, Figs. 2 and 8). This increased collection of light rays along the optical axis of the lens enables one to focus the light rays in a particular direction with less scatter toward peripheral directions. Additionally, the plurality of elements of Yamana et al. would increase the light intensity of the light-emitting portion of Rosenberg. Such an increase in light intensity would also increase the transmission range of the device of Rosenberg.

4. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg and Yamana et al. as applied to claim 1 above, and further in view of Amano. Rosenberg and Yamana et al. disclose all the limitations of claim 2 except for said first lens having a semi-cylindrical shape. However, Amano teaches such a lens having a semi-cylindrical shape (see Figs. 4, 9, 11, and 12). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the semi-cylindrical shape of Amano for the lens of Yamana et al. in the device of Rosenberg. One

of ordinary skill in the art would have been motivated to do this since "light rays which have passed through that surface [lens] portion are collected more closely along the optical axis of the lens" (Yamana et al., col. 4, lines 3-5, Figs. 2 and 8). This increased collection of light rays along the optical axis of the lens enables one to focus the light rays in a particular direction with less scatter toward peripheral directions.

5. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg and Yamana et al. as applied to claim 1 above, and further in view of Fujimura et al. Rosenberg and Yamana et al. disclose all the limitations of claim 3 except for said first lens having an elongated semi-spherical shape. However, Fujimura et al. teaches such a lens having an elongated semi-spherical shape (see Drawings 1-3 and section "Detailed Description," items 0011 and 0014-0016). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the elongated semi-spherical shape of Fujimura et al. for the lens of Yamana et al. in the device of Rosenberg. One of ordinary skill in the art would have been motivated to do this since "light rays which have passed through that surface [lens] portion are collected more closely along the optical axis of the lens" (Yamana et al., col. 4, lines 3-5, Figs. 2 and 8). This increased collection of light rays along the optical axis of the lens enables one to focus the light rays in a particular direction with less scatter toward peripheral directions.

6. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg in view of Yamana et al. Rosenberg discloses all the limitations of claim 5 except for a lens having an elongated convex shape provided on a light-emitting element wherein the lens is elongated in a horizontal direction. However, Yamana et al. teaches a lens having

an elongated convex shape provided on a light-emitting element (see treatment of claim 1 above) wherein the lens is elongated in a horizontal direction (Fig. 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a lens that is elongated in a horizontal direction in Rosenberg's device, as taught by Yamana et al. One of ordinary skill in the art would have been motivated to do this to provide a "device for illuminating linear fields" (Yamana et al., col. 1, lines 8-9).

7. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg in view of Yamana et al. Rosenberg discloses all the limitations of claim 6 except for a lens having an elongated convex shape provided on a light-emitting element and a reflective cup enclosing said lens. However, Yamana et al. teaches a lens having an elongated convex shape provided on a light-emitting element (see treatment of claim 1 above) and a reflective cup enclosing said lens (see Figs. 1-3 and the corresponding descriptions in col. 2, lines 55-60; col. 3, lines 10-20). At the time of the invention was made, it would have been obvious to a person or ordinary skill in the art to incorporate a reflective cup enclosing the lens of Yamana et al. into Rosenberg's device, as taught by Yamana et al. One of ordinary skill in that art would have been motivated to do this since "light rays emitted sidewardly of the chip are reflected frontwardly by a convex mirror [cup] formed on the substrate integrally therewith. Therefore, light rays incident on the cylindrical lens within an effective range will increase, it being thus possible to achieve improved utilization of light" (Yamana et al., col. 4, lines 27-33).

Response to Arguments

8. Applicant's arguments filed 4 September 2002 have been fully considered but they are not persuasive. The applicant's attorney argues, "Neither Rosenberg nor

Yamana, individually or in combination, teach or suggest a single elongated lens provided for a plurality of light emitting elements and for expanding the light radiation range in the X-direction" (paper no. 4., page 5, second paragraph). However, the examiner respectfully disagrees. Yamana et al. (U.S. Patent No. 5,418,384) teaches such a single elongated lens (Yamana et al., concave portion 4 in Fig. 1, col. 2, line 66 – col. 3, lines 36). Note that concave portion 4 in Fig. 1 is provided for "36 GaP light-emitting diode chips 2 in a row" (Yamana et al., col. 3, lines 1-2). Also, note that the lens of Yamana et al. is also provided for expanding the light radiation range in the X-direction: "In order to minimize the decrease of illuminance (i.e. illuminance ripple in the X-X' direction) in a subject field in front of any position at which a light-emitting diode chip 2 is absent (or a gap between adjacent light-emitting diode chips), the light-pervious resin 5 used for sealing purposes contains SiO_2 (silica) powder that serves as a light scattering agent" (Yamana et al., col. 3, lines 30-36). Thus, the examiner respectfully maintains the standing rejections.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Angerstein et al., Schairer, Bradley et al., Kerklaan et al., Tolbert, Takahashi et al. are cited to show related communication devices.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Kim whose telephone number is 703-305-6457. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

DSK
September 11, 2002

JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600